



An Approach for Developing a Standard Method for Conducting Post-Implementation Reviews

**NAS Configuration Management and Evaluation, ACM-1
Program Evaluation, ACM-10**

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EXECUTIVE SUMMARY

In an April 1999 report titled, *Air Traffic Control – FAA’s Modernization Investment Management Approach Could Be Strengthened* (GAO/RCED/AIMD-99-88), the General Accounting Office (GAO) recommended that the Federal Aviation Administration (FAA) initiate post-implementation reviews (PIRs) on its acquisition programs. A PIR is an evaluation tool to improve the overall planning and acquisition process for major acquisition investments by comparing estimated versus actual results for acquisition programs or projects and determining opportunities for improvement both to the planning and acquisition process and to programs or projects based on lessons learned. The objectives of a PIR are (1) to identify whether the asset is performing as planned, (2) to ensure continual improvement of an agency’s capital programming process based on lessons learned, and (3) to minimize the risk of repeating past mistakes. The FAA agreed with GAO’s recommendation to implement a PIR process.

In keeping with this agreement, the Integrated Product Leadership Team (IPLT) asked the National Airspace System (NAS) Configuration Management and Evaluation Staff (ACM) to conduct a study and outline an approach for performing PIRs at the FAA. The results of that study form the basis for this report.

Four Segments to the PIR Development Process

We identified four crucial segments to developing a standard method for conducting PIRs. These four segments must be developed sequentially and incorporated into the FAA Acquisition System Tool set (FAST).

The first task in creating a standard method for conducting PIRs is to identify the organization that will be responsible for leading the PIR assessments. The task of identifying that organization will fall to the management teams from Air Traffic Services (ATS) and Research and Acquisitions (ARA). In this report, we refer to that organization as the PIR Staff Office. It will be this PIR Staff Office that will be responsible for leading the effort to develop a standard method for conducting PIRs during all four segments.

Segment A: Defining the agency PIR policy

The PIR Staff Office should lead a sub-group to define the agency PIR policy. The group should include subject-matter experts in the area of policy formulation. It should also include representation from the Acquisition System Advisory Group (ASAG). This sub-group must be able to mesh the policy regarding PIRs with other policies already in effect at the agency.

To assist this effort, we have identified ten significant factors to consider when defining the agency PIR policy. These factors include such issues as determining when an acquisition will be subject to a PIR, when a waiver may be permitted, and when the PIR will be initiated, as well as what elements will be measured in the PIR assessment. We have provided substantial details on each of the ten areas identified. This detail and discussion is shown in Appendix A.

Segment B: Developing a process for conducting PIRs

The PIR Staff Office should lead a sub-group designated to develop the process. This group needs to include subject-matter experts in the areas of investment analysis and solution implementation. This sub-group should include members of Integrated Product Teams (IPTs) and Product Teams (PTs), Investment Analysis team leads, and members from organizations that maintain and operate the systems or equipment that has been acquired and installed.

To assist this sub-group, we have broken the PIR process down into three phases: Planning the PIR, Conducting the PIR Assessment, and Reporting and Feedback Loop. We have identified the activities that should be conducted during each of these phases. In addition, we have mapped the phases of the PIR to the phases of the Acquisition Management System (AMS).

In Appendix B, we have provided the detail necessary for the sub-group to develop a comprehensive PIR process. In addition, we have offered a sample framework for a PIR process, formatted to incorporate directly into the FAST, in Appendix C.

Segment C: Establishing standard operating procedures for conducting PIRs

The PIR Staff Office should lead the effort to establish standard operating procedures for conducting PIRs. The PIR procedures should follow the same three phases as the PIR process and should be closely aligned with the steps in the PIR process. In Appendix D, we have listed a series of activities that could be considered for inclusion in the PIR procedures. Once the procedures are established, they should be documented in a written manual so that everyone involved in conducting PIRs will know what is expected during each phase of the PIR.

Segment D: Evaluating and revising the PIR process and procedures based on the effectiveness of PIRs conducted.

The PIR Staff Office will lead the effort to evaluate the effectiveness of the PIR process and procedures. Working with members of the organizations involved in the planning, conducting and reporting phases of the PIR, the PIR Staff Office should identify solutions for problems that occur during the PIR phases. Recommended changes to the policy, process or procedures should be forwarded to the Joint Resources Council (JRC), IPLT, or the ASAG, as appropriate, for consideration.

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I. INTRODUCTION

A. Background

Intended Purpose and Definition of PIRs

A Post-Implementation Review (PIR) is an evaluation of an acquisition program or project *after* the system or equipment acquired has been fielded. The PIR assessment is accomplished by comparing actual results to estimated results for baseline parameters established early in the acquisition lifecycle. These baseline parameters include, but are not limited to, cost, schedule, performance, and mission improvement outcomes. (Mission improvement outcomes are commonly referred to as “benefits.”)

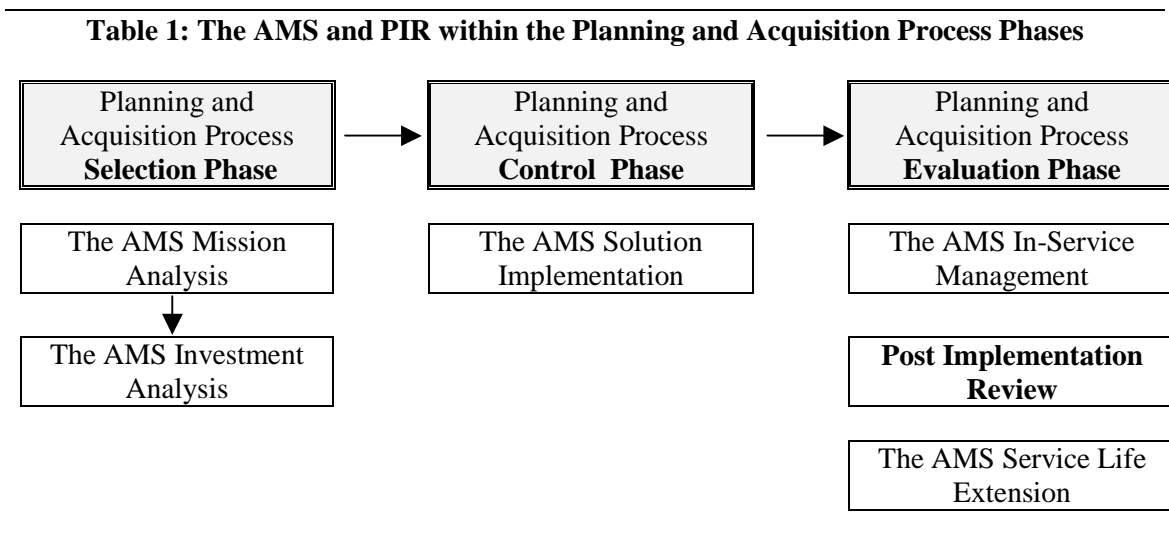
The Federal Aviation Administration (FAA) already has processes in place to track certain baseline parameters under the agency’s Acquisition Management System (AMS). In fact, Acquisition Program Baselines (APBs) are routinely used as the basis upon which to track the estimated cost, schedule, performance, and benefits for acquisitions. The agency tracks variances to these established baselines. These tracking results are reported in the Simplified Program Information Reporting and Evaluation (SPIRE) database. While tracking these baselines can become part of the PIR assessment, this tracking does not, in and of itself, replace the PIR.

The PIR is a broader look at acquisition investment results. The PIR is designed as a diagnostic tool to evaluate the overall effectiveness of the agency’s approach to managing major acquisition investments through its capital planning and acquisition process. The AMS is the process by which the FAA implements its capital planning and acquisition activities.

For the purposes of the PIR, major acquisitions are defined as capital assets that require special management attention. This attention may be required because of the importance of the asset to the agency mission; high development, operating, or maintenance costs; high risk; high return; or the significance played in the administration of agency programs, finances, property, or other resources. The primary objectives of a PIR are (1) to identify whether these major acquisition investment assets are performing as planned, (2) to ensure continual improvement of the agency’s overall capital planning and acquisition process implemented through the AMS, and (3) to minimize the risk of repeating past mistakes.

There are three fundamental phases in any capital planning and acquisition process for managing major acquisition investments: (1) selection phase, (2) control phase, and (3) evaluation phase. The AMS, which is the agency’s structured investment management approach, provides policies, procedures, and reporting requirements for the selection and control phases. The AMS also provides some guidance for the evaluation phase, but does not yet include a PIR process. The PIR, which will become part of the AMS, falls under the evaluation phase.

Table 1 shows how the AMS accomplishes the phases of the overall planning and acquisition process, and where the PIR fits within the AMS.



The actual PIR assessment does not occur until the evaluation phase, but planning for the PIR occurs as early as Investment Analysis during the selection phase. Metrics, data, and documents for the PIR are collected as the acquisition program or project progresses through Investment Analysis and Solution Implementation in the selection and control phases. The PIR assessment, itself, is conducted when the acquisition moves into In-Service Management under the evaluation phase.

The primary intent of the PIR is to validate the agency's acquisition investment decisions and to provide opportunities to improve future decisions by making improvements in the acquisition activities performed in the selection and control phases. Since the PIR is accomplished by comparing estimated versus actual results for individual acquisition programs or projects, opportunities for improvement may be identified for the programs or projects themselves, as well as for the overall capital planning and acquisition process. Recognizing this dual purpose, we have developed the following definition of PIR for the FAA:

“An evaluation tool to improve the agency's overall capital planning and acquisition process for major acquisition investments by comparing estimated versus actual results for acquisition programs or projects and determining opportunities for improvement both to the planning and acquisition process and to programs or projects based on lessons learned.”

Standardized PIRs in the FAA

Although some elements of a PIR assessment are being tracked under the AMS already, the FAA has not established a formal, standardized method for conducting PIRs. The

General Accounting Office (GAO) evaluated the FAA's capital planning and acquisition process for major acquisition investments in an April 1999 report titled *Air Traffic Control -- FAA's Modernization Investment Management Approach Could Be Strengthened* (GAO/RCED/AIMD-99-88). In that report, the GAO recommended that the FAA initiate post-implementation reviews for programs or projects within 3 to 12 months of deployment or cancellation to compare the completed projects' cost, schedule, performance, and mission improvement outcomes with the original estimates. The FAA agreed with this recommendation.

As part of the agency's effort to implement this recommendation, the FAA's Integrated Product Leadership Team (IPLT) asked the National Airspace System (NAS) Configuration Management and Evaluation Staff (ACM) to conduct a study and outline an approach for performing PIRs at the FAA. The results of that study, and the information provided in this report, will assist the agency in developing a standard method for conducting PIRs.

B. Objectives of this Review

The objective of this review was to identify an approach for developing a standard method for conducting PIRs at the FAA. Our focus was on offering a flexible approach that would fit within the AMS and would allow options within a general framework of a standard method for conducting PIRs.

C. Scope of this Review

We directed our efforts toward identifying a standard method for conducting PIRs that would fit within the AMS framework already in place.

D. Summary of the Methodology used in Conducting this Review

In order to identify a reasonable approach for the FAA to use in developing PIR policy, process, and procedures, we conducted the following research and analyses:

- 1) *We established an approach for conducting PIRs based on the best practices of other government agencies, private industry, and academic organizations.*

In accomplishing this step, we identified other agencies with PIR policies in place. We reviewed their related policy and guidance documents. We also reviewed data from private industry and academic organizations, including a benchmarking study from the American Productivity and Quality Center's Institute for Education Best Practices. We reviewed laws, regulations, and guidance pertaining to PIRs from GAO and the Office of Management and Budget (OMB). Using the data collected from these various sources, we established a generalized approach for conducting PIRs.

- 2) *We documented PIR practices currently in place at the FAA.*

We contacted FAA managers of programs reported on in the SPIRE database. We identified those programs that had PIR-related activities already in place. We also identified those programs with plans in place to conduct PIR activities in the future. Based on interviews with Integrated Product Team (IPT) members from

those programs, we documented the PIR activities currently being conducted at the FAA.

3) *We identified processes within the AMS that could be used in conducting PIRs.*

In addition to conducting interviews with IPT members, we interviewed 19 individuals from 11 different functional areas and working groups within the FAA to gain insight into the steps that would be needed for a successful PIR process.

4) *We identified an approach for developing a standardized PIR process.*

We matched current and recommended PIR practices identified from FAA interviews in items (2) and (3) above to PIR processes identified from research in item (1) above. From this match, we designed an approach for developing a standardized PIR process. Since the AMS is a part of the FAA acquisition system toolset (FAST), we reviewed FAA policies and processes captured in the FAST to blend the recommended approach for a PIR process with the AMS already in place.

5) *We verified the feasibility of the approach identified with FAA personnel familiar with the PIR effort.*

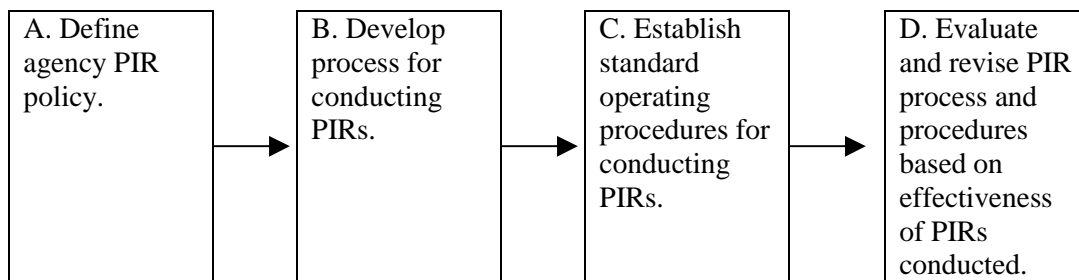
We forwarded for comment an outline of the recommended approach to 35 FAA personnel and support contractors. The list of selected reviewers included individuals previously interviewed and members of the IPLT and Acquisition System Advisory Group (ASAG) who had not been contacted previously. Many reviewers forwarded the outline to others and collected comments from them. We conducted additional interviews with several of the reviewers to ensure we understood their comments, suggestions, and concerns. We incorporated their comments into the recommended approach, revising steps as appropriate.

A detailed methodology section is included in Appendix E.

II. RESULTS

The results of this review and the information collected herein will assist the agency in developing a standard method for conducting PIRs. Developing this standard method involves four distinct segments, to be completed in sequence. These four segments are (a) defining the agency PIR policy, (b) developing the process to be followed in conducting PIRs, (c) establishing standard operating procedures for conducting PIRs, and (d) evaluating and revising the process and procedures based on the effectiveness of actual PIRs conducted. Table 2 shows these four segments and the sequence in which they should be completed.

Table 2: PIR Development Flow Chart



Before a standard method for conducting PIRs can be developed in the FAA, the agency needs to define its PIR policy and incorporate that policy into the AMS. From there, a process can be developed. Once the process is developed, it should be documented and included in the FAST. After the process is developed, standard operating procedures for conducting the PIRs can be established. At that point, PIRs can be conducted in the agency. Based on the effectiveness of the PIRs conducted, the PIR process and procedures should be evaluated and revised as necessary.

In this report, we have provided an approach for completing each of the four segments that must be addressed in developing a standard method for conducting PIRs. In addition, appendices providing the detail necessary to accomplish the first three segments are attached to this report. Because the fourth segment will be based on decisions made during the PIR assessment, we did not attempt to provide specific details for this segment.

The first task in creating a standard method for conducting PIRs is to identify the organization that will be responsible for leading the PIR assessments. The task of identifying that organization will fall to the management teams from Air Traffic Services (ATS) and Research and Acquisitions (ARA). In this report, we refer to that organization as the PIR Staff Office. It will be this PIR Staff Office that will be responsible for leading the effort to develop a standard method for conducting PIRs during all four segments.

(A) Define Agency PIR Policy

The PIR Staff Office should be responsible for forming and leading a cross functional sub-group that would define the agency PIR policy. The group should include subject-matter experts, some having experience in the various phases of the AMS and others in the area of policy formulation. It should also include representation from the Acquisition System Advisory Group (ASAG). This sub-group must be able to mesh the policy regarding PIRs with other policies already in effect at the agency.

We have identified ten significant factors to consider when defining the agency PIR policy. Those ten factors are:

- (1) the purpose of the PIR,
- (2) the scope of applicability of the PIR policy,
- (3) the level of independence required in conducting the PIR assessment,
- (4) the roles and responsibilities of organizations expected to produce documentation in support of the PIR,
- (5) the criteria for an initial determination of whether or not an acquisition will be subject to a PIR,
- (6) the criteria for subsequent determinations of whether or not an acquisition will be subject to a PIR,
- (7) the organization that will be responsible for identifying those acquisitions that will be subject to a PIR,
- (8) whether or not a waiver will be permitted, and, if so, the actions needed for those acquisition programs or projects to request a waiver,
- (9) the range of time within which the PIR assessment should be initiated, and
- (10) the basic parameters or elements that will be measured in the PIR.

Appendix A provides the detail needed to define the agency PIR policy.

(B) Develop Process for Conducting PIRs

The PIR Staff Office should be responsible for forming and leading a cross functional sub-group designated to develop the process. This group needs to include subject-matter experts in the areas of investment analysis and solution implementation. This sub-group should include members of Integrated Product Teams (IPTs) and Product Teams (PTs), Investment Analysis team leads, and members from organizations that maintain and operate the systems or equipment that has been acquired and installed.

There are three phases to the PIR process: (1) planning the PIR, (2) conducting the PIR assessment, and (3) reporting and feedback of information collected during the PIR assessment.

In identifying an approach for developing the PIR process, we mapped these three phases to the AMS process. Planning the PIR begins during Investment Analysis. Planning and preparing to conduct the PIR assessment continues as data and documents are collected

through Solution Implementation. Conducting the PIR assessment occurs during In-Service Management. Reporting and feedback, which follows the PIR assessment, also occurs during In-Service Management.

In Appendix B, we have provided the detail for a general approach for developing a PIR process. The approach we recommend fits within the AMS process and provides enough flexibility to accommodate various acquisition programs or project types. In Appendix C, we have presented a sample framework for a standardized process that could be used for conducting PIR assessments in the FAA.

(C) Establish Standard Operating Procedures for Conducting PIRs

Once the PIR policy has been defined and the process developed, a set of standard operating procedures for conducting PIRs should be established. The procedures will describe the specific activities to be performed in conducting PIRs. These procedures will follow the same three phases as the PIR process: (1) planning the PIR, (2) conducting the PIR assessment, and (3) reporting and feedback of information collected during the PIR assessment. The PIR Staff Office will be responsible for developing these standard operating procedures.

Appendix D provides the detail for the PIR Staff Office to use in establishing standard operating procedures for PIRs.

**(D) Evaluate and Review PIR Process and Procedures
Based on the Effectiveness of PIRs Conducted**

The PIR process and procedures should be evaluated and revised, as necessary, to increase the value of PIRs in improving the overall planning and acquisition process for the agency's major acquisition investment decisions. These reviews should be conducted after one or more PIRs have been completed.

The PIR Staff Office should work with members of the acquisition, operation and maintenance organizations to find solutions for problems that occur during the planning, conducting, or reporting phases of the PIR. This evaluation should focus on identifying opportunities for improvement in the PIR process and procedures.

Recommended changes to the policy or process based on this evaluation should be forwarded to the Joint Resources Council (JRC), IPLT, or ASAG, as appropriate, for consideration.

(E) Next Steps in Developing a Standard Method for Conducting PIRs

The approach we have outlined for developing the formal PIR policy, a standardized process, and a set of PIR procedures requires the interaction of several teams within the agency. To clarify the roles of each team in the development of these PIR areas, we have

identified the next steps to be performed and have suggested the responsible party for each step. These steps are listed in the order in which they should be accomplished. Table 3 summarizes these next steps.

Table 3: Summary of Proposed Next Actions

	<i>What action should be taken</i>	<i>Suggested responsible party</i>
	Define Agency PIR Policy (see Appendix A)	
1	Designate or establish an organization to be responsible for conducting PIRs and ensure adequate resources to accomplish PIR responsibilities. (PIR Staff Office)	The management teams from Air Traffic Services (ATS) and Research and Acquisitions (ARA) -- based on recommendations from the IPLT.
2	Develop the PIR policy.	Sub-group led by the PIR Staff Office identified in step (1) above.
3	Forward PIR policy to the ASAG for FAA Administrator approval.	Sub-group identified in step (2) above.
4	Incorporate approved PIR policy into the AMS.	ASAG
	Develop PIR Process (see Appendices B and C)	
5	Identify sub-group to develop PIR process.	PIR Staff Office designated in step (1) above.
6	Develop PIR process and develop templates for FAST.	Sub-group identified in (5) above.
7	Incorporate PIR process and templates into the AMS and FAST.	ASAG
	Establish PIR Procedures (see Appendix D)	
9	Develop agency PIR standard operating procedures.	PIR Staff Office designated in step (1) above.
10	Document PIR standard operating procedures in a written handbook.	PIR Staff Office designated in step (1) above.
11	Incorporate standard operating procedures into the FAST	ASAG

We have provided details for accomplishing each of these three segments in the appendices to this report. Appendix A provides the details necessary for defining the agency PIR policy. Appendix B provides the detail for developing a PIR process. In addition, we have presented a sample framework for a standardized PIR process in Appendix C. Appendix D lists procedures that could be considered under each phase of the PIR process.

Appendix A: **Define Agency PIR Policy**

Agency PIR policy should be defined by a sub-group identified and lead by the PIR Staff Office. This sub-group should develop the PIR policy, obtain approval of the PIR policy from the FAA Administrator by forwarding it to the ASAG for inclusion in the AMS. Appendix A provides the information needed for the sub-group to define the PIR policy.

Policy

“*Policy*” provides the top-level direction for decision-makers. The agency PIR policy will provide the broad requirement to perform PIRs and will set the tone for the level of independence expected in the PIR review. It will also enable managers to know whether or not the PIR requirement applies to specific programs under their control.

Significant Factors

We identified ten significant factors to be considered when defining the agency PIR policy. These factors include (1) the purpose of the PIR, (2) the scope of applicability of the PIR policy, (3) the level of independence required in conducting the PIR assessment, (4) the roles and responsibilities of organizations expected to produce documentation in support of the PIR, (5) the criteria for an initial determination of whether or not an acquisition will be subject to a PIR, (6) the criteria for subsequent determinations of whether or not an acquisition will be subject to a PIR, (7) the organization that will be responsible for identifying those acquisitions that will be subject to a PIR, (8) whether or not a waiver will be permitted, and, if so, the actions needed for those acquisition programs or projects to request a waiver, (9) the range of time within which the PIR assessment should be initiated, and (10) the basic parameters or elements that will be measured in the PIR

(1) Purpose of the PIR.

A PIR is intended to be an evaluation tool to improve the agency’s capital planning and acquisition process. The PIR is accomplished by comparing estimated versus actual results for acquisition programs or projects, then determining opportunities for improvement both to the capital planning and acquisition process and to programs or projects based on lessons learned. The ultimate goal of the PIR is to provide an opportunity for the agency to improve the overall quality of future investment decisions.

The primary objectives of the PIR are (1) to identify whether the acquired system or equipment is performing as planned, (2) to ensure continual improvement of the agency’s overall capital planning and acquisition process, which is implemented through the AMS, and (3) to minimize the risk of repeating past mistakes.

(2) Scope and applicability of the PIR policy.

PIRs are required for *all* major capital acquisitions. The FAA has not defined the parameters for a major capital acquisition. For the purposes of the PIR, major

acquisitions are defined as capital assets that require special management attention. This attention may be required because of the importance of the asset to the agency mission; high development, operating, or maintenance costs; high risk; high return; or the significance played in the administration of agency programs, finances, property, or other resources.

The PIR policy must apply to major acquisitions. It should be broad enough to apply to full systems and services within the NAS architecture, as well as to individual acquisition programs and projects.

The PIR policy should be designed to apply to new acquisition programs or projects that have not yet reached the investment decision point in the acquisition lifecycle. Although activities from the PIR process may be applied to acquisitions in different phases of the lifecycle, significant elements of the PIR need to be planned prior to the investment decision. In addition, data must be documented and collected throughout the Investment Analysis and Solution Implementation phases of the AMS. Once an acquisition reaches the In-Service Management phase, the opportunity to plan the PIR and collect meaningful data may be limited.

(3) *Level of independence required in conducting the PIR assessment.*

To be creditable, a PIR should be an independent assessment. The actual or perceived level of independence may impact the results of the PIR, the benefits derived from the PIR, and the credibility of the agency in reporting PIR results to Congress and the public.

To preserve independence, the PIR Staff Office should not report directly to an organization or office that has primary responsibility for the selection and control phases of the capital planning and acquisition process. In the AMS, those phases are the Mission Analysis phase, Investment Analysis phase, and Solution Implementation phase. The PIR Staff Office will need to have the authority to review acquisition programs and projects across all lines of business and organizations.

In addition, the policy should identify the level of management to which the PIR Staff Office will address the results of the PIR assessment.

(4) *Roles and responsibilities of organizations producing supporting documentation*

The value of the PIR assessment will be tied to the accuracy and completeness of supporting documentation used in the PIR analysis. These supporting documents will be produced by a variety of organizations across different lines of business throughout the acquisition lifecycle. It is important that these organizations understand their roles in the PIR process and recognize their responsibilities in the development of accurate and complete supporting documentation.

(5) *Criteria for the initial determination of whether or not an acquisition will be subject to a PIR.*

Not every acquisition may be a candidate for a PIR. The team defining the PIR policy should consider what criteria will be used to determine which acquisitions will be subject to a PIR. Criteria could be stratified, based on (1) the dollar threshold for the acquisition investment, (2) public interest in the acquisition, and (3) the level of risk associated with meeting the critical parameters identified for the acquisition.

Dollar threshold

Criteria could be based on a dollar threshold for the acquisition investment. For example, criteria could include (a) the total lifecycle cost for a group of interdependent systems designed to provide a complete service within the NAS architecture, (b) the lifecycle cost for individual acquisition programs or projects, or (c) the ratio of the investment needed for the software development portion of software intensive acquisitions compared to the total acquisition cost. The dollar amounts in each group would need to be determined.

Public interest

Criteria could be based on the visibility of the program or project and the public interest surrounding the acquisition. For example, criteria could include the level to which an acquisition program or project (a) is mission critical or (b) has captured the public interest and is followed in the news or in Congress. Criteria might also be established to include acquisitions that (c) are part of a pilot program or (d) are designated for an Independent Operational Test and Evaluation (IOT&E) since these activities are mission critical and tend to bring the acquisition to the attention of the public and Congress.

Level of Risk

Criteria could be based on the level of risk associated with meeting the critical parameters identified in the Investment Analysis Report and the APB. For example, criteria could include the level of risk associated with (a) breaching the JRC-approved baselined lifecycle cost of the acquisition, (b) adhering to the planned schedule, (c) achieving the performance goals, (d) realizing the expected benefits, and (e) gaining user acceptance.

Examples of flow charts for the stratified criteria are shown in Tables 4 through 6 on the following pages.

Table 4: Sample Flow Chart to Identify Acquisitions Subject to a PIR

Based on Dollar Threshold

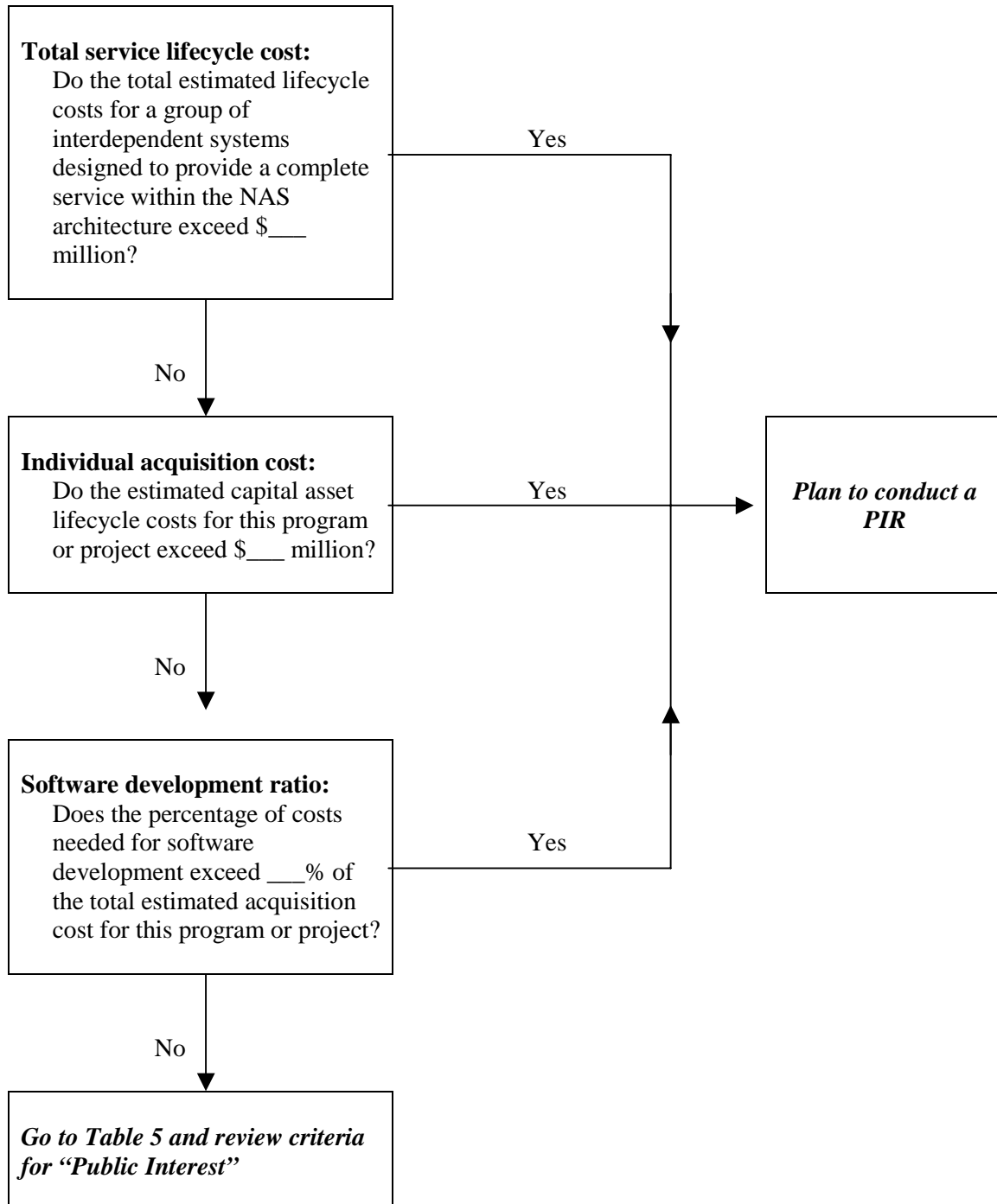


Table 5: Sample Flow Chart to Identify Acquisitions Subject to a PIR

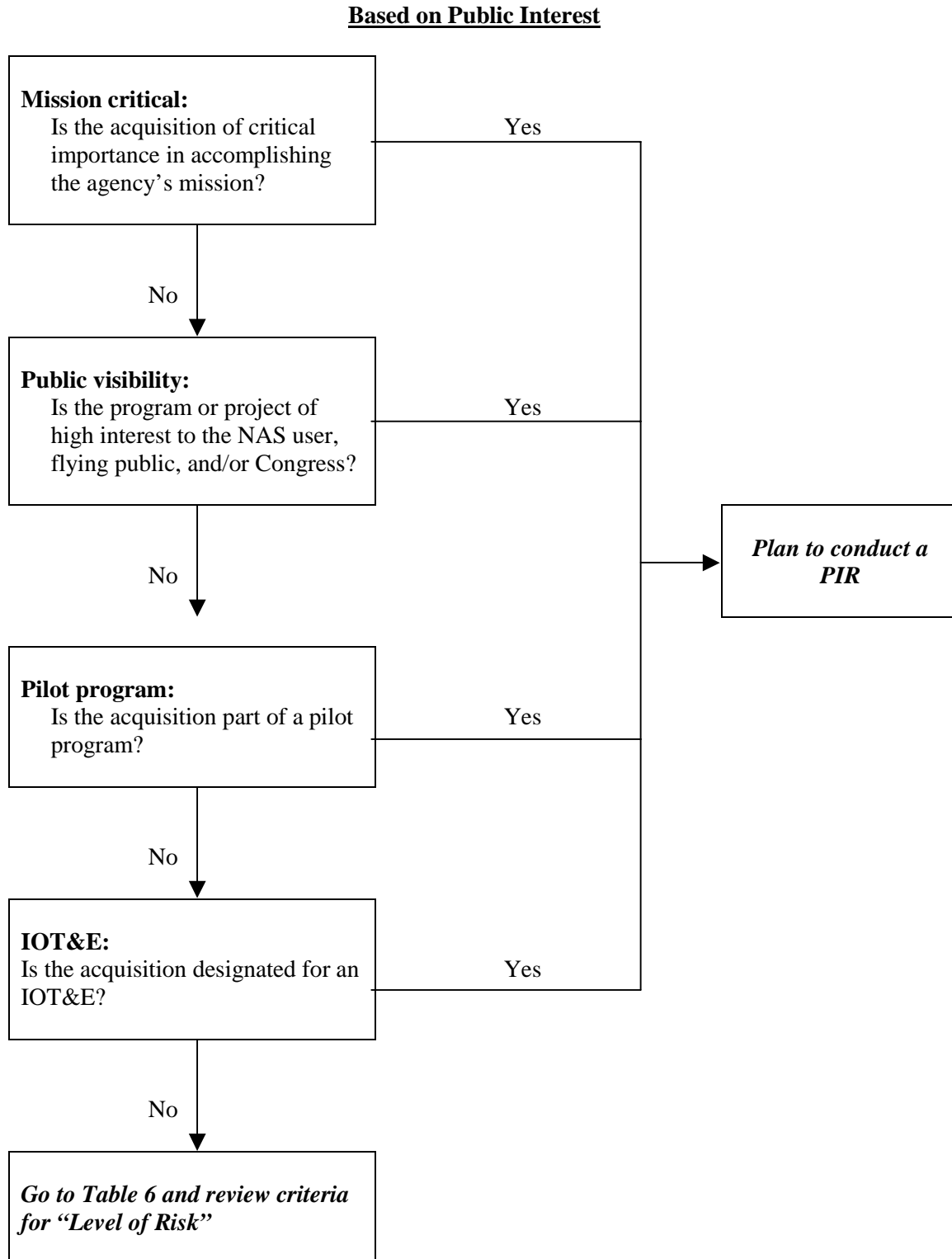
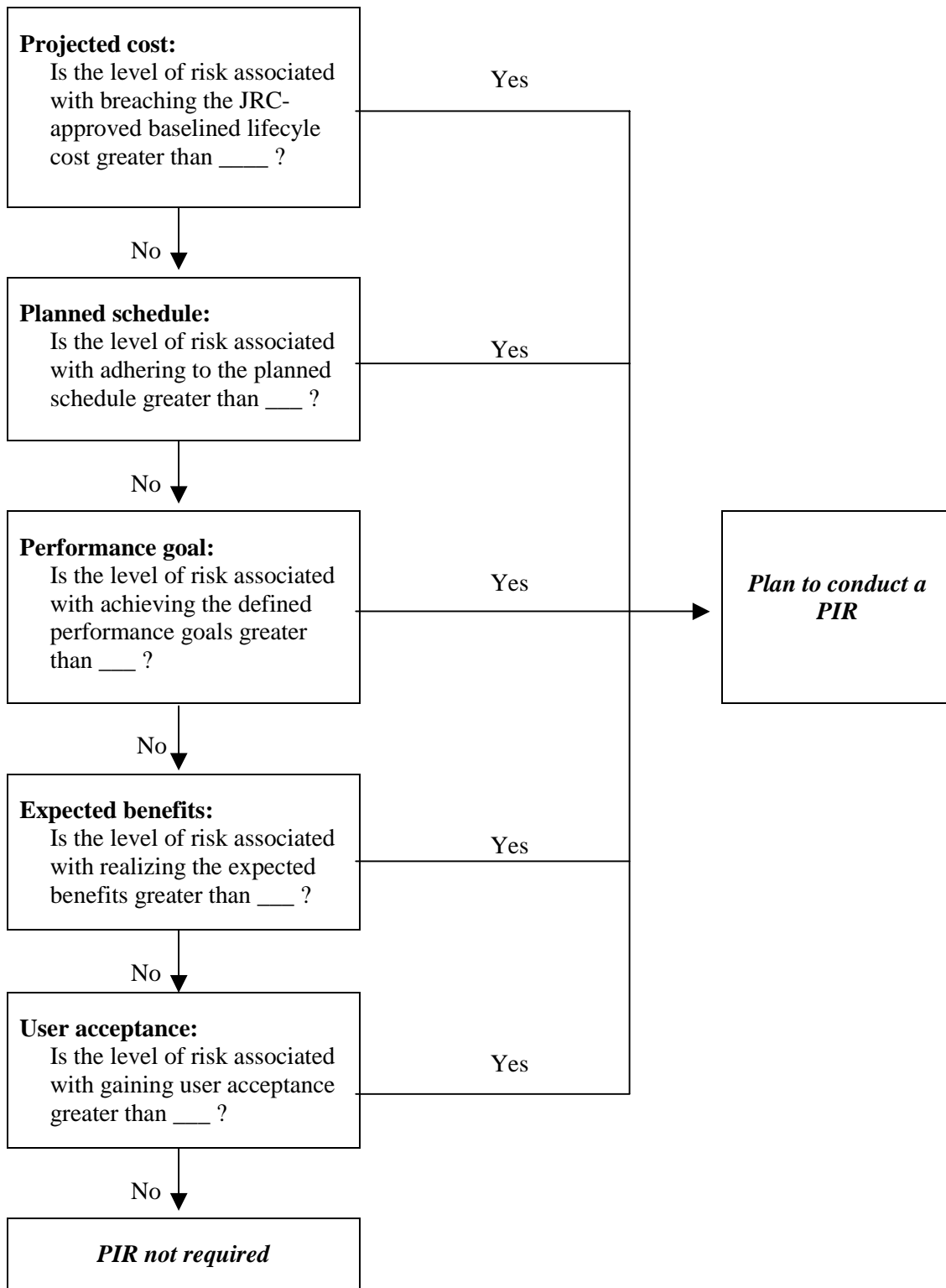


Table 6: Sample Flow Chart to Identify Acquisitions Subject to a PIR

Based on Level of Risk



Other criteria could also be considered, such as the benefit-to-cost ratio, the level of risk associated with a rapidly changing technology, the risk associated with future personnel skill mix requirements, and labor union issues that might affect cost, schedule, or user acceptance.

(6) Criteria for subsequent determinations of whether or not an acquisition will be subject to a PIR.

An acquisition that does not meet any of the criteria to require a PIR at the initial analysis may meet that criteria at a later point in the acquisition lifecycle. If, at any point during the lifecycle, the acquisition meets the established criteria making it subject to a PIR, the PIR Staff Office should be notified and that acquisition should be designated for a PIR.

There are events that may occur during the Solution Implementation phase that should automatically trigger a review to determine whether a PIR will be required. For some events, the acquisition will need to be reevaluated against the initial criteria to determine whether or not an acquisition that was not previously designated for a PIR is now subject to a PIR. Other events will automatically lead to a PIR because of the high visibility or public interest.

Reevaluate Against Initial Criteria

There are certain events that may cause an acquisition not designated for a PIR to be reevaluated against the initial criteria. For example, variances to the APB and activities in support of preplanned product improvements (P3I) or technical refresh may change the data on which the initial investment determination was made.

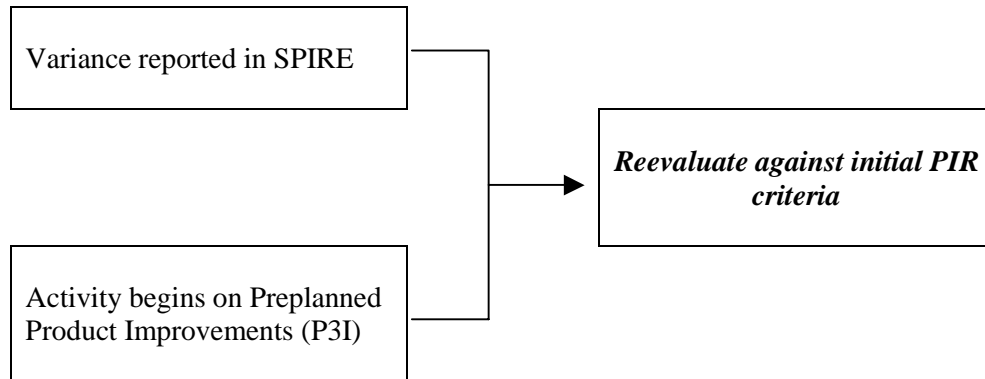
Variances to the APB. Acquisition programs or projects that report variances to their baselines should be reconsidered for a PIR assessment. APBs are routinely used to track a program's cost, schedule, performance, and benefits variances. These tracking results are reported in the SPIRE database. If a program or project that has not been designated for a PIR reports variances to the APB, that acquisition should be reevaluated against the PIR criteria. Variances may indicate that the level of risk was not accurately captured when the acquisition was initially evaluated against the criteria. It is also possible that changes in the cost baseline may have moved the acquisition above dollar thresholds identified in the criteria.

P3I and Technical Refresh. In addition, when a program or project not designated for a PIR begins activity on P3I or technical refresh, the acquisition should be reviewed against the initial criteria to determine whether new data will subject the acquisition to a PIR.

Table 7 shows a sample flow chart identifying events that trigger a re-evaluation.

Table 7: Sample Flow Chart to Identify Events Triggering PIR Reconsideration

Based on Activities during Solution Implementation



Automatically Require a PIR

Additional criteria may be established to require a PIR when certain events that occur during Solution Implementation bring the acquisition to public attention.

Reports to Congress. Whenever events related to the acquisition must be reported to Congress, a PIR should be required. For example, a PIR should be required for acquisition programs or projects that breach their baselines. Public Law 104-264 requires certain actions by the FAA Administrator whenever an acquisition program initiated after November 1996 breaches its baseline. Specifically the FAA Administrator shall terminate that program if it is more than 50 percent over cost or more than 50 percent behind schedule as determined by the cost and schedule goals established for the program. There is an exception in the law in which the FAA Administrator has the authority to continue an acquisition program if that termination would be inconsistent with the development or operation of the national air transportation system in a safe and efficient manner. The FAA Administrator must explain to Congress why a program that has breached its cost or schedule baseline by more than 50 percent is not being canceled. In addition, this public law states that the FAA Administrator shall *consider* terminating any substantial acquisition program that is more than 10 percent over cost or more than 10 percent behind schedule. Since breaching the baseline is a matter that must be addressed by the FAA Administrator and reported to Congress, it should trigger a PIR if one is not already required.

- (7) What organization will be responsible for identifying those acquisitions that will be subject to a PIR?

The policy should designate the organization or group responsible for identifying acquisitions subject to a PIR based on the criteria applied prior to the investment decision.

The policy should also designate the organization responsible for identifying acquisitions subject to a PIR based on a re-evaluation triggered by events during Solution Implementation.

(8) Whether or not waivers will be permitted, and, if so, the process to be followed for those acquisition programs or projects requesting a waiver.

The JRC is the senior decision-making body that makes corporate-level resource and investment decisions and establishes acquisition programs. As such, the JRC may decide at the time of the investment decision that an acquisition program or project meeting the criteria for a PIR will not have a PIR assessment. It may not make sense to do a PIR assessment because of the type of acquisition. It may not make sense because the cost of doing a PIR assessment on that particular program or project will outweigh the benefit. If the JRC decides that a PIR assessment will not be done on an acquisition meeting the established criteria, that decision, along with the reasons supporting the decision, should be recorded. That decision should be documented in the JRC Record of Decision.

If waivers are permitted, waivers will undoubtedly be requested. If waivers will be permitted, there should be a process for documenting the basis for granting waivers. The FAA Acquisition Executive Advisory Board (FAB), as it currently exists, was established to deal with requests for waivers from the AMS policy. The memorandums requesting waivers from the AMS policy are presented to the FAA Acquisition Executive (FAE) for approval. Any waiver process considered for PIRs could also go through the FAB process for approval.

(9) Range of time within which the PIR assessment should be initiated.

A timeframe should be designated for initiating the PIR assessment, which occurs during the In-Service Management phase of the AMS. A timeframe should also be designated for conducting multiple PIR assessments, especially where interdependent systems are acquired, or where P3I is anticipated. In addition, there should be a timeframe designated for initiating a PIR assessment on acquisition programs or projects that have been canceled.

Initiating PIR Assessment

The time within which a PIR assessment must be initiated is not specified in legislation. Each agency must establish its own policy. We found the U.S. Coast Guard designated three to six months after implementation; the U.S. Customs Service specified six to nine months. The GAO recommended the FAA initiate PIR assessments within 3 to 12 months of deployment or cancellation.

The FAA policy could be flexible within the recommended time by designating that the PIR assessment be performed within 3 to 12 months after *one or more* fully operational units are deployed. It might make sense to conduct the PIR assessment after only one unit is operational, or it might be reasonable to wait until all units are fully operational. It is a more likely scenario that the PIR assessment should be conducted after a number of units have been deployed. That number could be identified as a quantity of units or as a percentage of sites. This preserves flexibility for the acquisition programs and projects.

The timing of the PIR assessment should be based on the progression of the acquisition program or project. The assessment should not be initiated before there is sufficient, reliable data available to conduct a thorough PIR analysis and produce a meaningful report. The assessment should not be delayed, however, to the point that the analysis would not be beneficial to the program or project office managing the acquisition.

Multiple PIR Assessments

There should be an opportunity for multiple PIR assessments for acquisitions of single systems, for interdependent systems, and for acquisitions with P3I.

Single System Acquisitions. If a PIR assessment does not yield reliable results because of insufficient data, a subsequent assessment should be scheduled. The subsequent PIR assessment should be conducted after the acquisition has progressed to the level where sufficient, reliable data becomes available.

Interdependent Systems. For a group of interdependent systems designed to provide a complete service within the NAS architecture, multiple PIR assessments should be scheduled at various points as each system moves into the In-Service Management phase. Each PIR assessment should be timed to provide reliable analysis that could be beneficial to other components of the complete service that are still in the Investment Analysis or Solution Implementation phases.

P3I. Multiple PIR assessments for acquisitions with P3I should also be timed to the point at which the segment will have progressed to a level where sufficient data will be available to produce meaningful results from the PIR assessment.

Canceled Acquisitions

In addition, the policy must consider how quickly the PIR assessment should be initiated for programs or projects that are canceled in the Solution Implementation or In-Service Management phases of the AMS. The GAO recommendation of 3 to 12 months after cancellation could be incorporated into FAA policy.

(10) Basic parameters or elements to be measured in the PIR.

There are four baselines tracked in SPIRE and required by the AMS. These baselines are cost, schedule, performance, and benefits. These elements should be measured in

the PIR assessment. In addition, GAO and OMB guidance recommend that the PIR assessment consider whether the program meets mission needs, supports its user base, and has accurately evaluated the risk associated with the acquisition investment. It is important that all basic parameters or elements be quantified during the Investment Analysis and Solution Implementation phases so they can be measured during the PIR assessment.

Appendix B:

Develop Process for Conducting PIRs

The PIR process should be developed by a sub-group lead by the PIR Staff Office. This sub-group should develop the PIR process and the templates that will be used in conducting PIR assessments. In addition, this sub-group should ensure the PIR process and templates are incorporated into the AMS and FAST.

In Appendix B, we have provided the detail for a general approach for developing a PIR process. The approach we recommend fits within the AMS process and provides enough flexibility to accommodate various acquisition programs or project types. In Appendix C, we have presented a sample framework for a standardized process that could be used for conducting PIR assessments in the FAA.

Process

“Process” provides the general approach and structure for implementing the policy. Once the PIR policy has been defined, a PIR process needs to be developed.

Approach for Developing a PIR Process

The actual PIR assessment occurs during the In-Service Management phase of the AMS. This assessment takes place *after* the system or equipment acquired by the program or project has been fielded. It might appear that no work on the PIR needs to be completed until the system or equipment has been fielded, but that is incorrect. In fact, the work needed to prepare for the PIR assessment begins as early as the Investment Analysis phase and continues through the Solution Implementation phase.

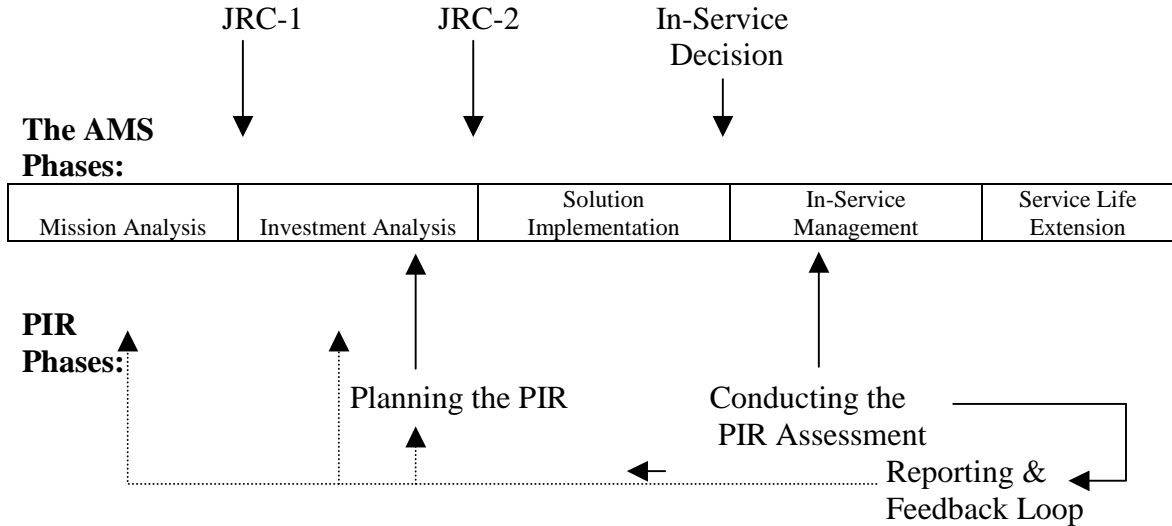
Phases of the PIR

Just as there are graduated phases to the AMS, there are phases to the PIR. The PIR process has three phases: (1) planning the PIR, (2) conducting the PIR assessment, and (3) reporting and feedback of information collected during the PIR. Planning the PIR begins during the Investment Analysis phase of the AMS. Planning and preparing to conduct the PIR assessment continues as data and documents are collected through the Solution Implementation phase of the AMS. The PIR assessment, itself, occurs during the In-Service Management phase of the AMS. Reporting and feedback occurs after the PIR assessment is completed.

Table 8 shows how the three phases of the PIR blend with the AMS process and the phases of the AMS.

Table 8: Integration of the PIR Process with the AMS

The AMS Process:



❑ ***Planning the PIR***

Even though the actual PIR assessment doesn't occur until the In-Service Management phase of the AMS, planning the PIR begins as early as the Investment Analysis phase and continues through the Solution Implementation phase. Planning requires a significant level of effort. Table 9 highlights those planning activities that occur during the Investment Analysis and Solution Implementation phases.

**Table 9: PIR Planning Activities during Investment Analysis
and Solution Implementation**

The AMS Process:

JRC-1



JRC-2




In-Service
Decision



AMS Phases:

Mission Analysis	INVESTMENT ANALYSIS	SOLUTION IMPLEMENTATION	In-Service Management	Service Life Extension
---------------------	--------------------------------	------------------------------------	--------------------------	------------------------------

PIR Planning Activities:

- | | |
|---|--|
| <ul style="list-style-type: none"> • Identify a PIR support representative who will coordinate with the IAT. • Determine whether the acquisition will be subject to a PIR assessment. • Develop a PIR Plan. • Include resource needs for conducting the PIR assessment in the APB. • Document expected acquisition results |  <ul style="list-style-type: none"> • Obtain investment decision. • Document any waivers to the PIR. • Prepare a PIR Strategy Paper. • Document variances to baselines. • Ensure data sources will be available for conducting the PIR assessment. |
|---|--|

INVESTMENT ANALYSIS PHASE

Decision to require a PIR. During the Investment Analysis phase, it must be decided whether or not the planned acquisition will be subject to a PIR assessment. This determination will be made by the organization or group identified in the PIR policy as having this responsibility. The decision will be based on criteria identified by the PIR policy.

Identify PIR Support Representative. The PIR Staff Office will designate an individual to work as a consultant with the Investment Analysis Team and the Solution Implementation Team in developing documents needed to prepare for the PIR assessment. This individual will not be a participating member in the investment analysis or the solution implementation aspects of the acquisition. Rather, this individual will support the PIR process and provide guidance to ensure sufficient, adequate data will be available to conduct a meaningful PIR assessment once the system or equipment being acquired is fielded.

Document expected results. The basic parameters or elements to be measured during the PIR assessment will be determined by the PIR policy. Those elements should include, at a minimum, baselines for cost, schedule, performance, and benefits, all of which are captured in the APB during the Investment Analysis. The data recorded in the APB will be used during the PIR assessment; all information from the initial and subsequent APBs must be included with the PIR documentation.

While the APB identifies what the expected results will be for the baseline elements, it does not identify how those results will be measured. In preparing the PIR documents, emphasis needs to be placed not only on *what* the expected outcomes will be, but also on *how* those outcomes will be quantified and measured. For example, in the case of benefits, the team documenting the expected benefits from a specific acquisition needs to consider whether the stated benefits can be realized and whether the agency can realistically measure those benefits. The PIR assessment results for this element rely on the ability to measure whether or not those stated benefits were achieved.

Where there are acquisitions of interdependent systems designed to provide a complete service within the NAS architecture, consideration must be given to how each acquisition impacts the other. The interdependencies need to be recorded for the PIR records. For planning purposes, the timing and schedule of the PIR assessment may coincide with the fielding of a complete service within the NAS architecture rather than the acquisition of a single service or piece of equipment for one program or project. In addition, the interdependencies will affect the PIR assessment conclusions. For example, if the benefits from one acquisition cannot be fully realized until another system or piece of equipment is fielded, a delay in the first acquisition will impact the schedule results and measurable benefits in the dependent acquisition. If these interdependencies are not fully documented during the planning phase, the PIR assessment conclusions may not be accurate and will be of limited value.

In addition to the baseline elements included in the APB, the PIR assessment should measure whether the acquisition meets mission needs and supports its user base. The PIR assessment also should evaluate whether the risk associated with the acquisition investment was accurately evaluated. These, and any other elements identified in the PIR policy, should be fully documented during the PIR planning phase so that the PIR assessment will have a baseline from which to measure.

The PIR support representative, acting in a role of consultant to the Investment Analysis Team, will be instrumental in ensuring the appropriate data is captured.

Develop a PIR Plan. The Investment Analysis Team, working with the PIR support representative, should prepare a written plan for conducting the PIR assessment. This written plan will provide a basic outline only. It should identify the expected outcomes and results from the acquisition, the planned events and activities needed to conduct the PIR assessment, and the resources necessary for accomplishing the PIR. The PIR Plan, developed during the Investment Analysis phase prior to the investment decision, provides a general overview of the approach that will be taken. A more detailed strategy for performing the PIR assessment will be developed after the investment decision has been made and the team tasked with solution implementation has been identified.

The PIR Plan developed by the Investment Analysis Team should be reviewed by the PIR Staff Office and approved by the FAE and the sponsoring organization.

This PIR Plan should be available at the investment decision JRC meeting (JRC-2), which occurs at the conclusion of the Investment Analysis phase. Where these investment decision JRC meetings are held in two parts, the written plan should be submitted during the second meeting (JRC-2B) along with the Investment Analysis Report and the APB.

Include resource needs for conducting the PIR assessment in the APB. Costs of performing the PIR assessment should be included in the lifecycle cost of the acquisition. The Investment Analysis Team will be responsible for ensuring appropriate data regarding the PIR assessment is incorporated into the APB.

SOLUTION IMPLEMENTATION PHASE

Obtain investment decision. The JRC will make the decision whether or not to proceed with the acquisition based on information provided at the conclusion of the Investment Analysis phase. If the decision is made to proceed with the acquisition, PIR planning activities continue.

Document any waivers to the PIR. If a PIR is required based on policy guidelines, but the JRC determines that a PIR assessment will not be conducted, this decision should be documented and forwarded to the PIR Staff Office for information. The PIR Staff Office should maintain a record of the acquisitions that received waivers to the PIR. This information may be used later for trend analysis or to respond to inquiries from oversight agencies.

Prepare a PIR Strategy Paper. The specific strategy for conducting the PIR assessment should be developed during the early stages of the Solution Implementation phase immediately following the investment decision to proceed with the acquisition. This PIR Strategy Paper fills in the details not included in the PIR Plan. It should identify the

types of data that will be needed, the organizations responsible for providing the data, and a description of how the data will be used to accomplish the PIR assessment.

The PIR Staff Office, working with the team tasked with solution implementation, will be responsible for developing and documenting the PIR strategy. This PIR Strategy Paper should be coordinated with key stakeholders and reviewed by the acquisition organization, which may include the IPT and the Product Team (PT).

Contents of the PIR Strategy Paper will include: (a) the elements to be reviewed during the PIR, (b) the approach for measuring results, (c) a plan for determining whether or not the acquisition supports its user base, (d) the composition of, and responsibilities for, PIR Assessment Team members, and (e) the schedule, including site visits and travel requirements, for conducting the PIR assessment.

- (a) The PIR Strategy Paper should document the specific parameters or elements to be reviewed during the PIR assessment. For example, it should identify the estimated results for cost, schedule, and performance; it should document the expected benefits; it should record the estimated risks associated with the acquisition; and it should identify the mission need expected to be satisfied by the acquisition.
- (b) The PIR Strategy Paper should provide the approach that will be used to measure the actual results against the estimated results for each element. In addition, it should identify key AMS documents that will be required in order to conduct the PIR assessment.
- (c) The PIR Strategy Paper should also include a section designed to measure whether the acquisition supports its user base. For example, how will the PIR assessment measure whether or not customers and users are satisfied with the end product? How will the PIR assessment evaluate the competency of the workforce to use the new system or equipment?
- (d) In addition, the PIR Strategy Paper should identify the composition of the PIR Assessment Team, identified by organization; the roles and responsibilities of participants in the PIR assessment; PIR Assessment Team cross-functional representation; and resource requirements. A Memorandum of Agreement may need to be established as an attachment to the PIR Strategy Paper to document the commitment of organizations to provide personnel and other resources to support the PIR assessment.
- (e) Schedules, including site visits and travel requirements, should be documented in the PIR Strategy Paper as well. Since overlapping benefits from interdependent systems may impact the timing and schedule of the PIR assessment, these need to be documented in the PIR Strategy Paper.

The PIR strategy should be captured in the Acquisition Strategy Paper (ASP) and the Integrated Program Plan (IPP) by the acquisition organization, which is represented by the Integrated Product Team/Product Team (IPT/PT).

Document variances to baselines. During Solution Implementation, the acquisition organization will document variances to established baselines and will identify the causes of these variances. This information will need to be collected and made available to the PIR assessment team.

Ensure data sources will be available for conducting the PIR assessment. Metrics, data, and documents identified in the PIR Strategy Paper are collected throughout the Solution Implementation phase by the acquisition organization. Data, methods, and techniques for conducting the PIR assessment rely on using existing AMS documents to the extent possible. It is the responsibility of the acquisition organization to ensure that data sources are, or will be, available for conducting the subsequent PIR assessment.

❑ ***Conducting the PIR Assessment***

Conducting the PIR assessment takes place during the In-Service Management Phase of the AMS. Following the in-service decision, a PIR assessment team consisting of cross-functional members is formed. This team, under the leadership of the PIR Staff Office, prepares a schedule for accomplishing the PIR assessment and begins collecting documents, conducting interviews, and analyzing data. All activities accomplished during the PIR assessment should be in accordance with the PIR Strategy Paper and should follow the standard operating procedures established by the PIR Staff Office.

Form the PIR assessment team. The PIR Staff Office will be responsible for assembling the PIR assessment team. The make-up of this team should be consistent with agreements in the PIR Strategy Paper. It is expected that this team will be cross-functional and include a variety of related disciplines. The PIR Strategy Paper will identify team participants by organization rather than by name. The PIR Staff Office may consider including individuals who participated in various aspects of the Solution Implementation. This would leverage the expertise of those who have knowledge of the acquisition. However, the benefit of that expertise and knowledge must be balanced with the need for independence in conducting the PIR assessment. The PIR Staff Office will provide the team leadership.

Schedule PIR assessment activities. The PIR assessment team will prepare a schedule for accomplishing the PIR assessment. The timing and schedule of the PIR assessment should be in accordance with the PIR Strategy Paper. However, the PIR Staff Office should also consider whether the acquisition has progressed on schedule and whether it has reached a point where sufficient data will be available to conduct a thorough PIR analysis and produce a reliable report. This may not be known until some work on the PIR assessment has begun. If the acquisition has not reached a level where sufficient data will be available, it will be at the discretion of the PIR Staff Office to delay the PIR assessment.

Collect data and develop fieldwork papers. While the acquisition organization is responsible for ensuring data sources will be available for conducting the PIR assessment, it is the PIR assessment team, led by the PIR Staff Office, that is responsible for assembling the data and documenting results. Data, methods, and techniques for conducting the PIR assessment should rely on existing AMS documents to the extent possible. Some of those documents include:

- AMS required documents
 - Mission Need Statement (MNS)
 - Requirements Document (RD)
 - Investment Analysis Report (IAR)
 - Acquisition Program Baseline (APB)
 - Acquisition Strategy Paper (ASP)
 - Integrated Program Plan (IPP)
- Other documents that may be available for review
 - Capital Investment Plan (CIP)
 - NAS Architecture documents
 - JRC Records of Decision
 - IPT/PT Team Charter
 - Product Team Plan
 - Risk Management Plan
 - List of Risks
 - Earned Value Reports
 - Statements of Work
 - Data Item Descriptions
 - Contract Modifications
 - Baseline Management Notice (BMN)
 - Variance Summary Report
 - Selected Program Status Reports (PSR)
 - Selected Air Traffic Systems Development Status Reports (ATSD)
 - Customer Survey Reports
 - Program Budget Documents (including history of budget cuts)
 - Acquisition Review (AR) Briefings and Action Items
 - Developmental Test and Evaluation (DT&E) Reports
 - Operational Test and Evaluation (OT&E) Reports
 - Independent Operational Test and Evaluation (IOT&E) Reports
 - Physical Configuration Audit (PCA) Reports
 - Functional Configuration Audit (FCA) Reports
 - In-Service Review (ISR) Checklist and Results
 - In-Service Decision Briefing
 - In-Service Decision Action Plans
 - Lessons Learned Tools (Database, Reports, etc.)
 - Congressional Letters/Responses
 - Congressional Language in the Budget

- GAO Reports/Office of Inspector General Reports
- Union agreements
- Memorandums of Agreement

The information collected from these documents should be recorded in fieldwork papers that will serve as the evidence for work conducted in performing the PIR assessment. This evidence may be necessary for conducting later trend analyses or for responding to queries from oversight agencies. The fieldwork papers should be prepared following standard operating procedures developed by the PIR Staff Office.

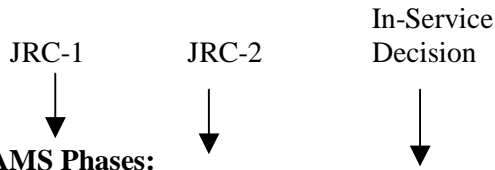
Conduct interviews, surveys, and site visits. The PIR assessment team will schedule and conduct interviews, surveys, and site visits. To the extent possible, this team should identify and use data from exiting program interviews, surveys, and site visits. These may include previous activities such as Operational Test and Evaluation (OT&E), IOT&E, and in-service reviews. It is not expected that these previous activities will include everything the PIR needs to address. Therefore, additional interviews, surveys, and site visits specific to PIR requirements will need to be identified and performed. Again, this work should be accomplished in accordance with the PIR Strategy Paper and following standard operating procedures developed by the PIR Staff Office.

Analyze data. The data collected during Investment Analysis and Solution Implementation, as well as data collected during the PIR assessment, will be reviewed and analyzed by the PIR assessment team. This analysis will be performed under the leadership of the PIR Staff Office in accordance with the PIR Strategy Paper and following standard operating procedures developed by the PIR Staff Office. The analysis should be documented in fieldwork papers that will serve as evidence for the work performed.

Table 10 highlights the activities conducted for the PIR assessment and the reporting and feedback loop, both of which occur during the In-Service Management phase of the AMS.

**Table 10: Activities Conducted during the PIR Assessment
and the Reporting and Feedback Loop**

The AMS Process:



AMS Phases:

Mission Analysis	Investment Analysis	Solution implementation	IN-SERVICE MANAGEMENT	Service Life Extension
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PIR Activities:

Conducting the PIR Assessment

- Form the PIR assessment team.
- Schedule PIR assessment activities.
- Collect data and develop fieldwork papers.
- Conduct interviews, surveys, and site visits.
- Analyze data.

Reporting and Feedback Loop

- Develop findings and recommendations.
- Verify reasonableness of program recommendations.
- Prepare PIR report.
- Distribute PIR report.
- Brief PIR results.
- Establish targeted lessons learned.
- Perform trend analyses.

❑ ***Reporting and Feedback Loop***

Reporting and feedback of the PIR assessment results occurs during the In-Service Management phase following the PIR assessment activities. The PIR Staff Office is responsible for ensuring that the results of the PIR assessment are documented and reported to the appropriate levels of management. In addition, the PIR Staff Office is responsible for maintaining a record of the results from individual assessments for use in trend analyses.

Develop findings and recommendations. Conclusions drawn from analysis during the PIR assessment should be documented in findings. These findings should be based on sufficient, competent evidence to support the conclusion. The analysis leading to the conclusion should be documented in fieldwork papers that are maintained by the PIR Staff Office. All work performed in developing findings should be accomplished following standard operating procedures established by the PIR Staff Office.

PIR assessments should also have one or more recommendations based on the findings developed. The recommendations may be specific to the acquisition or may be directed to the AMS process. *At a minimum*, the PIR assessment recommendation should state whether the acquisition should (a) continue as planned, (b) continue with modifications, or (c) be terminated.

Verify reasonableness of program recommendations. Before findings and recommendations are reported in a formal document, the acquisition organization should have an opportunity to review them to verify the accuracy of the findings and to attest to the reasonableness of the recommendations. The acquisition organization may respond to the findings and suggest alternate recommendations as appropriate. If recommended changes to the acquisition program are beyond the control of the acquisition organization, those recommendations will be forwarded to the appropriate decision-making body, such as the JRC, for a decision.

Prepare PIR report. The PIR assessment team will develop the draft report for review by the PIR Staff Office manager. The draft report should be coordinated for review and comment to ensure that findings are accurate and recommendations are feasible before the report becomes final. The report should include performance results, causes for both positive and negative outcomes, factors contributing to or confounding results, recommendations for corrective actions, and lessons learned.

Distribute the PIR report. The intent of the PIR report is to inform appropriate stakeholders of the results and to support and improve decision-making processes. As such, PIR reports should be provided to stakeholders and appropriate management levels involved in making acquisition decisions, including but not limited to:

- JRC,
- Sponsor,
- Acquisition Organization, represented by the IPT/PT,
- Investment Analysis function,

- Mission Need Steering Group,
- IPLT, and
- Integrated Management Team.

PIR reports should also be accessible to the others in the acquisition community. The FAA Intranet offers one avenue for making these reports accessible to everyone within the agency.

The PIR Staff Office should have the responsibility for maintaining control of the PIR report content integrity.

Brief PIR results. The PIR assessment team will brief the results of the PIR to various decision-making bodies and stakeholders as appropriate.

Perform trend analyses. The PIR Staff Office should perform trend analyses based on a series of PIR assessments completed on a variety of acquisitions over a period of time. The goal of the trend analyses is to identify opportunities to improve the overall capital planning and acquisition process. The results of trend analyses should be documented in written reports with lessons learned targeting the improvement of the overall AMS process and minimizing the risk of repeating past mistakes.

Establish targeted lessons learned. Lessons learned should be captured and made accessible to the entire acquisition community. In addition, selected lessons learned should be communicated to appropriate organizations, including the JRC, IPLT, Integrated Management Team, the acquisition organization, and Investment Analysis Teams. These groups could be briefed on the lessons learned using existing forums for management reviews, such as:

- JRC meetings
- Acquisition Reviews
- IPLT meetings
- Program Status Reports (PSR)
- Air Traffic System Development Status Report (ATSD)
- Directorate level all-hands meetings

The PIR process is not intended to generate an excessive number of lessons learned that may be of limited value or have no practical application. To the extent possible, lessons learned should be very selective or targeted without making references to specific programs. In developing lessons learned, the PIR Staff Office should coordinate with key organizations and decision-making bodies to identify lessons learned.

Ideally, the results of PIR trend analyses and targeted lessons learned would be consolidated into a manageable set of best practices that could be universally applied across acquisition programs and processes. Best practices should cover the full spectrum of lifecycle management and capital planning and acquisition processes.

APPENDIX C:

Sample Framework for a Standardized PIR Process

Following the approach outlined in this report, the ACM evaluation team has created a sample framework for a standardized PIR process. The steps within this sample framework provide the flexibility to accommodate varying acquisition program or project types. In developing this sample framework, we wanted to ensure the standard method for conducting PIR assessments would fit within the AMS process.

We have designed this section to be a stand-alone document that could be inserted directly into FAST with limited modifications. Therefore, we provided an introduction and created decision and activity charts consistent with the presentation format provided in FAST. We also used the same terminology as the in-service decision process in the AMS. Where applicable, we have identified potential concerns that should be addressed by the team developing the formal standardized PIR process.

This is intended only as a sample framework. In finalizing the data for FAST, decision and activity charts should be added, deleted, or revised as necessary.

Post-Implementation Review Process

Introduction to the PIR Process

Post-Implementation Review (PIR) is defined as an evaluation tool to improve the agency's overall capital planning and acquisition process for major acquisition investments by comparing estimated versus actual results for acquisition programs or projects and determining opportunities for improvement both to the planning and acquisition process and to programs or projects based on lessons learned.

PIR assessments will be conducted on major acquisitions of systems or equipment. The primary objectives of the PIR are (1) to identify whether these major acquisition investment assets are performing as planned, (2) to ensure continual improvement of the agency's overall capital planning and acquisition process implemented through the Acquisition Management System (AMS), and (3) to minimize the risk of repeating past mistakes.

Results of the PIR assessment will be provided to stakeholders and appropriate management levels involved in making acquisition decisions. These results will include lessons learned targeting the improvement of the overall capital planning and acquisition process and minimizing the risk of repeating past mistakes.

Methods and techniques for conducting the PIR include using existing AMS documents and events to the extent possible. AMS documents, such as the Investment Analysis Report (IAR), the Acquisition Program Baseline (APB), the Acquisition Strategy Paper (ASP), and the Integrated Program Plan (IPP) are used in planning the PIR and conducting the PIR assessment. The PIR assessment also capitalizes on the results of AMS events, such as periodic Acquisition Reviews and In-Service Reviews. The PIR

assessment should complement and leverage the results of deployment planning, which assesses the readiness of the solution to be implemented. The documents and methods to be used in conducting the PIR assessment are identified in the PIR Plan, which is prepared during the Investment Analysis phase, and the PIR Strategy Paper, which is developed during the early stages of the Solution Implementation phase.

Conducting the PIR assessment involves coordination among, and participation of, many critical functional disciplines. These disciplines include, but are not limited to, the sponsor, the Investment Analysis Team, the PIR Staff Office, and the acquisition organization, including the Integrated Product Team (IPT) and the Product Team (PT). The PIR Staff Office will be responsible for leading the PIR effort and coordinating the planning and execution activities.

Decision and Activity Charts

□ Planning the PIR

1.0 Pre-Solution Implementation Description

PIR planning activities are initiated during the AMS Investment Analysis phase. Emphasis is placed on ensuring that the Investment Analysis Team not only identifies *what* the expected results will be, but also *how* those expected results will be quantified and measured after the system or equipment acquired has been fielded. The Investment Analysis Team needs document the risk associated with achieving the expected results. In addition, where there are acquisitions of interdependent systems designed to provide a complete service with the National Airspace System (NAS) architecture, the Investment Analysis Team must document those interdependencies.

A PIR Plan should be developed by the Investment Analysis Team, reviewed by the PIR Staff Office, and approved by the FAA Acquisition Executive (FAE) and the sponsoring organization. The PIR Plan will document the expected outcomes and results from the acquisition, the planned events and activities needed to conduct the PIR assessment, and the resources necessary for accomplishing the PIR. This plan should be available at the Joint Resources Council (JRC) investment decision meeting.

Decision D.1: JRC-1 Decision			
Responsible Agent	Product	Approval Authority	Tools/Aids
Sponsor	Mission Needs Statement	Joint Resources Council (JRC)	Mission Needs Template FAST Guidance
Description: The purpose of the JRC-1 decision is to obtain approval of the mission needs statement. This event also initiates Post Implementation Review activities.			

Activity 1.1: Determine whether Acquisition will be Subject to a PIR			
Responsible Agent	Product	Approval Authority	Tools/Aids
Organization identified in the PIR policy as having this responsibility.	N/A	Joint Resources Council (JRC)	Agency PIR policy
Description: During the Investment Analysis phase, it must be determined whether or not the planned acquisition will be subject to a PIR based on criteria identified in the agency PIR policy. Any waivers to the PIR process need to be approved by the JRC following the FAA Acquisition Executive Advisory Board (FAB) process.			

Activity 1.2: Establish PIR Point of Contact (POC)			
Responsible Agent	Product	Approval Authority	Tools/Aids
PIR Staff Office	Designated PIR point of contact to coordinate PIR planning activities	N/A	N/A
Description: The designated PIR Staff Office point of contact shall coordinate with Investment Analysis Team to ensure PIR planning is an integral component of the Investment Analysis. The PIR point of contact shall also provide guidance and attend various Investment Analysis meetings.			
Potential Concerns: <ul style="list-style-type: none"> The concept of having a PIR representative on the team is consistent with the Integrated Product Development System (IPDS) concept; it is not intended to challenge the team empowerment boundaries. The PIR representative should ensure the expected outcomes and results defined are measurable and the steps needed to conduct the PIR assessment are identified in the PIR Plan. 			

Activity 1.3: Document Expected Results			
Responsible Agent	Product	Approval Authority	Tools/Aids
Investment Analysis Team Lead	PIR Plan Investment Analysis Report APB	N/A	Agency PIR policy
<p>Description: The basic parameters or elements to be measured during the PIR assessment will be determined by the agency PIR policy. The expected outcomes and results for each of the elements must be documented in the PIR Plan, the Investment Analysis Report, and the Acquisition Program Baseline (APB). The PIR Plan must also describe how the outcomes will be quantified and measured. In addition, the risk associated with achieving these expected outcomes must also be documented.</p> <p>When conducting the Investment Analysis and preparing these documents, the Investment Analysis Team must consider existing PIR reports and lessons learned.</p> <p>Potential Concerns:</p> <ul style="list-style-type: none"> We propose that PIR planning take place during the Investment Analysis phase of the AMS. While it is possible the acquisition may not be approved, PIR planning would still be beneficial. In fact, it may be the PIR planning effort that leads the JRC to make its decision to delay or cancel a proposed acquisition investment. 			

Activity 1.4: Recommend PIR Assessment Team Composition			
Responsible Agent	Product	Approval Authority	Tools/Aids
Investment Analysis Team	Recommended PIR Assessment Team Composition List	N/A	PIR Plan
<p>Description:</p> <p>While the actual PIR assessment team will not be formed until the PIR assessment is initiated during the In-Service Management phase, the make-up of the team should be identified during the planning stages and documented in the PIR Plan.</p> <p>The Investment Analysis Team Lead and the PIR Staff Office manager shall review the recommended PIR Assessment Team composition list and approve it for presentation at the JRC-2 Decision.</p> <p>Team composition should include key process players who develop or maintain records that would be used to measure the attainment of projected benefits, such as Airway Facilities Service, Operational Support (AOS) or field technicians who maintain maintenance logs. Team composition may also include those organizations that will participate in readiness reviews, such as Independent Operational Test and Evaluation (IOT&E) and In-Service Reviews.</p> <p>A Memorandum of Agreement may need to be established as an attachment to the PIR Plan to document commitment by organizations providing personnel and other resources to support the PIR.</p>			

Activity 1.5: Develop PIR Plan			
Responsible Agent	Product	Approval Authority	Tools/Aids
Investment Analysis Team Lead	Written plan for conducting the PIR	Reviewed by the PIR Staff Office manager; Approved by the FAE and sponsoring organization.	Template designed for developing the written plan for conducting the PIR. Final Requirements Document (fRD) APB
<p>Description:</p> <p>The PIR Plan will provide an outline for conducting the PIR assessment. It will identify the expected outcomes and results from the acquisition, the planned events and activities needed to conduct the PIR assessment, and the resources necessary for accomplishing the PIR.</p> <p>The PIR Plan shall be an integral component of the Investment Analysis Report and the Acquisition Program Baseline (APB). Resources needed for conducting the PIR assessment must be factored into the Investment Analysis Report and included in the APB.</p> <p>The PIR Plan should be available at the investment decision JRC-2 meeting.</p> <p>Potential Concerns:</p> <ul style="list-style-type: none"> We propose that PIR planning take place during the Investment Analysis phase of the AMS. While it is possible the program or project may not be approved for acquisition, PIR planning would still be beneficial. In fact, it may be the PIR planning effort that leads the JRC to make its decision to delay or cancel a proposed investment. The PIR Plan should identify interdependent systems that must be in place before the full benefit of the acquisition program or project can be realized. A separate written plan for conducting a PIR on a total service benefit (rather than the acquisition of an individual system or equipment) may be needed. It is possible that the written plan for conducting the PIR may ultimately be developed as a stand-alone document. The intent, however, is to ensure integration with existing AMS documents. The written plan for conducting the PIR should be developed in coordination with Air Traffic Services or other appropriate operational organizations. 			

2.0 Solution Implementation Description

The JRC will make the decision whether or not to proceed with the acquisition investment based on information provided at the conclusion of the Investment Analysis phase. If the decision is made to proceed, PIR planning activities continue.

During Solution Implementation, the acquisition organization (currently represented by the IPT/PT), will develop the PIR Strategy Paper, record variances to established baselines, and document the causes for the variances. The IPT/PT will also ensure that data sources are, or will be, available for conducting the subsequent PIR assessment.

Decision D.2: JRC-2 Decision			
Responsible Agent	Product	Approval Authority	Tools/Aids
FAA Acquisition Executive (FAE)	Decision memo	JRC	N/A
<p>Description:</p> <p>If the JRC approves the acquisition investment, the decision memo will document approval of the PIR Plan as well. It must also document any exceptions. The JRC-2 Decision commits planned resources and validates PIR Assessment Team composition (by organization).</p> <p>If the JRC permits a waiver from the PIR process for acquisitions that are subject to a PIR, this decision should be documented in the decision memo as well.</p>			

Activity 2.1: Develop PIR Strategy Paper			
Responsible Agent	Product	Approval Authority	Tools/Aids
PIR Staff Office	Written strategy for conducting the PIR	PIR Staff Office manager	PIR Plan
<p>Description:</p> <p>This PIR Strategy Paper fills in the details not included in the PIR Plan. It should identify the types of data that will be needed, the organizations responsible for providing the data, and a description of how the data will be used to accomplish the PIR assessment.</p> <p>Contents of the PIR Strategy Paper will include (a) the elements to be reviewed during the PIR, (b) the approach for measuring results, (c) a plan for determining whether or not the acquisition supports its user base, (d) the composition of, and responsibilities for, PIR Assessment Team members, and (e) the schedule, including site visits and travel requirements, for conducting the PIR assessment.</p> <p>The PIR Staff Office, working with the team tasked with solution implementation, will be responsible for developing and documenting the PIR strategy. This PIR Strategy Paper should be coordinated with key stakeholders and reviewed by the acquisition organization, which may include the IPT and the Product Team (PT).</p> <p>Potential Concerns:</p> <ul style="list-style-type: none"> The PIR strategy should complement existing AMS documents and should be reflected in the Acquisition Strategy Paper (ASP) and the Integrated Program Plan (IPP) for the acquisition program or project. 			

Activity 2.2: Confirm PIR Considerations			
Responsible Agent	Product	Approval Authority	Tools/Aids
Acquisition organization, represented by the IPT/PT	ASP IPP	Integrated Management Team	ASP Template IPP Template
Description: PIR strategies for conducting the PIR shall be described in the Acquisition Strategy Paper (ASP) and the Integrated Program Plan (IPP).			

Activity 2.3: Document Baseline Variances			
Responsible Agent	Product	Approval Authority	Tools/Aids
Acquisition organization, represented by the IPT/PT	Updates to Existing Various Baseline Documents	IPT/PT	APB Baseline Management Notice
Description: IPT/PT shall document variances to established baselines and will identify the causes of these variances.			

Activity 2.4: Ensure Availability of Data Sources to Conduct PIR Assessment			
Responsible Agent	Product	Approval Authority	Tools/Aids
Acquisition organization, represented by the IPT/PT	N/A	N/A	PIR Plan PIR Strategy Paper Various management information systems and data sources
Description: IPT/PT will collect metrics, data, and documents identified in the PIR Plan and the PIR Strategy Paper. IPT/PT shall ensure that sufficient data sources are available to yield reliable conclusions from the PIR assessment. Note: It is anticipated that the IPT/PT will coordinate with the PIR Staff Office for guidance as needed.			

❑ *Conducting the PIR*

3.0 Post In-Service Decision Description

Conducting the PIR assessment takes place after the In-Service Decision. At this point, a PIR Assessment Team consisting of cross-functional members should be formed. The team makeup should be consistent with agreements established in the PIR Plan. The PIR Staff Office will provide leadership for the PIR Assessment Team. The timing and scheduling of the PIR assessment should be in accordance with the PIR Plan and PIR Strategy Paper.

Activity 3.1: Form PIR Assessment Team			
Responsible Agent	Product	Approval Authority	Tools/Aids
PIR Staff Office	PIR Stakeholders	Joint Integrated Management Team and PIR Staff Office manager	PIR Plan PIR Strategy Paper
<p>Description: The PIR Staff Office shall coordinate with the organizations identified in the PIR Plan and PIR Strategy Paper to establish the PIR Assessment Team.</p> <p>The Integrated Management Team and PIR Staff Office manager shall approve individuals assigned to the PIR Assessment Team.</p> <p>Potential Concerns:</p> <ul style="list-style-type: none">• In general, the PIR Assessment Team composition identified during the JRC-2 decision should not change relative to organizational participation. However, a degree of flexibility should be retained in forming the final PIR Assessment Team to leverage the expertise of key personnel who may have participated in related, critical activities such as Independent Operational Test and Evaluation (IOT&E) and In-Service Review activities.			

Activity 3.2: Schedule PIR Assessment Activities			
Responsible Agent	Product	Approval Authority	Tools/Aids
PIR Assessment Team	PIR Schedule	PIR Staff Office manager	PIR Plan PIR Strategy Paper
<p>Description: The PIR Assessment Team will prepare a schedule for accomplishing the PIR assessment. The timing and schedule of the PIR assessment should be in accordance with the PIR Strategy Paper.</p> <p>Potential Concerns:</p> <ul style="list-style-type: none"> The PIR Staff Office should consider whether the acquisition has progressed to a point where sufficient data will be available to conduct a thorough PIR analysis and produce a reliable report. If not, it will be at the discretion of the PIR Staff Office manager to delay the PIR assessment. 			

Activity 3.3: Collect Source Data			
Responsible Agent	Product	Approval Authority	Tools/Aids
PIR Assessment Team	N/A	N/A	PIR Plan PIR Staff Office standard operating procedures
Description: The PIR Assessment Team shall collect data and develop fieldwork papers in accordance with the PIR Staff Office standard operating procedures. Possible documents for review include, but are not limited to, the following: <div><div><u>The AMS Required Documents</u></div><div>Mission Need Statement (MNS) Investment Analysis Report (IAR) Acquisition Strategy Paper (ASP)</div><div>Requirements Document (RD) Acquisition Program Baseline (APB) Integrated Program Plan (IPP)</div></div> <div><div><u>Other Documents that may be Available for Review</u></div><div>Capital Investment Plan CIP) JRC Records of Decision Product Team Plan List of Risks Statements of Work Contract Modifications Variance Summary Report Customer Survey Reports In-Service Decision Briefing Congressional Letters/Responses Union agreements GAO Reports/Office of Inspector General Reports Lessons Learned Tools (Database, Reports, etc.) Selected Air Traffic Systems Development Status Reports (ATSD) Program Budget Documents (including history of budget cuts) Acquisition Review (AR) Briefings and Action Items Developmental Test and Evaluation (DT&E) Reports Operational Test and Evaluation (OT&E) Reports Independent Operational Test and Evaluation (IOT&E) Reports Physical Configuration Audit (PCA) Reports Functional Configuration Audit (FCA) Reports</div><div>NAS Architecture documents IPT/PT Team Charter Risk Management Plan Earned Value Reports Data Item Descriptions Baseline Management Notice (BMN) Selected Program Status Reports (PSR) In-Service Review (ISR) Checklist and Results In-Service Decision Action Plans Congressional Language in the Budget Memorandums of Agreement</div></div>			

Activity 3.4: Conduct Interviews, Surveys, and Site Visits			
Responsible Agent	Product	Approval Authority	Tools/Aids
PIR Assessment Team	Interviews Surveys Site Visits	N/A	PIR Plan PIR Strategy Paper PIR Staff Office standard operating procedures
Description: The PIR Assessment Team will schedule and conduct interviews, surveys, and site visits in accordance with the PIR Plan and PIR Strategy Paper. The PIR assessment shall use existing program interviews, surveys, and site information to the extent possible. The PIR Assessment Team shall collect data and develop fieldwork papers in accordance with the PIR Staff Office standard operating procedures.			

Activity 3.5: Analyze Data			
Responsible Agent	Product	Approval Authority	Tools/Aids
PIR Assessment Team	Fieldwork Papers	PIR Staff Office manager	PIR Staff Office standard operating procedures
Description: The PIR Assessment Team will review and analyze data collected during the PIR assessment. This analysis will be performed under the leadership of the PIR Staff Office in accordance with the PIR Strategy Paper and following the PIR Staff Office standard operating procedures.			

❑ ***Reporting and Feedback Loop***

Activity 3.6: Develop Findings and Recommendations			
Responsible Agent	Product	Approval Authority	Tools/Aids
PIR Assessment Team	PIR Findings and Recommendations	PIR Staff Office manager IPT/PT	PIR Staff Office standard operating procedures
<p>Description: The PIR Assessment Team shall develop PIR findings and recommendations in accordance with the PIR Staff Office standard operating procedures.</p> <p>Recommendations to take corrective actions on acquisition programs or projects being reviewed may include modifications that would improve performance results. The PIR Assessment Team may also recommend that the program office a) continue the program as planned, b) continue with modifications, or c) terminate the program.</p> <p>Program recommendations will be reviewed by the acquisition organization (represented by the IPT/PT) to verify the reasonableness of the suggestions.</p> <p>Potential Concerns:</p> <ul style="list-style-type: none"> • Having the PIR Assessment Team recommend corrective action is not intended to challenge the IPT/PT roles and responsibilities. The intent is to coordinate with IPT/PT to ensure that recommended corrective actions are appropriate and feasible. • Additional program funding may be required to implement PIR recommendations. It is anticipated that appropriate decision-making bodies, such as the JRC, will decide on any changes to program baselines as a result of a PIR assessment. 			

Activity 3.7: Prepare PIR Report			
Responsible Agent	Product	Approval Authority	Tools/Aids
PIR Assessment Team	Draft PIR Report Final PIR Report	PIR Staff Office manager	PIR Staff Office standard operating procedures PIR Report Template
<p>Description: The PIR Assessment Team shall develop a draft PIR report and submit to the PIR Staff Office manager for approval. The report should follow the guidelines established by the PIR Staff Office.</p> <p>The report should include the performance results, the causes for both positive and negative outcomes, factors contributing to or confounding results, recommendations for corrective actions, and lessons learned.</p> <p>Before becoming final, the report should be coordinated for review and comment to ensure that findings are accurate and recommendations are feasible.</p>			

Activity 3.8: Issue Final Report			
Responsible Agent	Product	Approval Authority	Tools/Aids
PIR Assessment Team	Final PIR Report	PIR Staff Office manager	PIR Staff Office standard operating procedures
<p>Description: The PIR Assessment Team shall issue the final report to various decision-making bodies, as appropriate.</p> <p>Potential Concerns:</p> <ul style="list-style-type: none"> The intent of the PIR report is to inform appropriate stakeholders of the results and to support decision-making processes. PIR reports should be made available to stakeholders involved in making decisions affecting acquisition programs and the capital planning and acquisition process. Those may include Joint Resources Council (JRC), Sponsor, IPT/PT, Investment Analysis function, Mission Need Steering Group, Integrated Product Leadership Team (IPLT), and Integrated Management Team (IMT). 			

Activity 3.9: Brief PIR Results			
Responsible Agent	Product	Approval Authority	Tools/Aids
PIR Assessment Team	PIR Briefing	PIR Staff Office manager	PIR Briefing Template
Description: The PIR Assessment Team shall brief the results of the PIR assessment to various decision-making bodies as appropriate. These may include Joint Resources Council (JRC), Integrated Product Leadership Team (IPLT), Integrated Management Team (IMT), and Integrated Product Team (IPT).			

Activity 3.10: Perform Trend Analyses			
Responsible Agent	Product	Approval Authority	Tools/Aids
PIR Staff Office	Trend Analysis Reports	PIR Staff Office manager	Final PIR Reports
Description: The PIR Staff Office shall perform trend analyses based on a series of PIR assessments. The results of the trend analyses should be documented in a written report. This trend analyses will assist in identifying opportunities to improve the agency's planning and acquisition process.			

Activity 3.11: Establish Targeted Lessons Learned			
Responsible Agent	Product	Approval Authority	Tools/Aids
PIR Staff Office	Targeted Lessons Learned	PIR Staff Office manager	PIR Staff Office standard operating procedures
<p>Description:</p> <p>The PIR Staff Office will establish targeted lessons learned based on results of PIR trend analyses. The purpose of identifying targeted lessons learned is to facilitate improvements to the capital planning and acquisition process. Lessons learned may target future acquisitions programs and possible improvements to any phase of the acquisition process, including Mission Analysis, Investment Analysis, Solution Implementation, In-Service Management, and Service Life Extension. The PIR Staff Office should coordinate with key organizations and decision-making bodies to identify targeted lessons learned that will facilitate improvements to the planning and acquisition process. Those key organizations include, but are not limited to, Acquisition Policy and Procedures Division (ASU-100) and Integrated Product Teams (IPTs).</p> <p>The PIR Staff Office should document lessons learned in the AMS lessons learned database.</p> <p>The PIR Staff Office should coordinate with key decision-making bodies within the agency to share lessons learned. Those key organizations include, but are not limited to, Joint Resources Council (JRC), Integrated Product Leadership Team (IPLT), Integrated Management Team (IMT), and Acquisition System Advisory Group (ASAG).</p> <p>Possible existing forums for sharing real time lessons learned may include, but are not limited to:</p> <ul style="list-style-type: none"> • JRC • Acquisition Reviews • IPLT • Program Status Reports (PSR) • Air Traffic System Development Status Report (ATSD) • Directorate level all-hands meetings • Briefings to IPTs and various directorates <p>Potential Concerns:</p> <p>The PIR process is not intended to generate an excessive number of lessons learned that may be of limited value or have no practical application. To the extent possible, lessons learned should be very selective or targeted without making references to specific programs. Ideally, the results of PIR trend analyses and targeted lessons learned would be consolidated into a manageable set of best practices that could be universally applied across acquisition programs and processes. Best practices should cover the full spectrum of lifecycle management and capital planning and acquisition processes.</p> <p>It is anticipated that positive lessons learned will also be identified as a result of PIRs.</p>			

Appendix D:

Establish Standard Operating Procedures for Conducting PIRs

The management teams from Air Traffic Services (ATS) and Research and Acquisitions (ARA) should designate or establish an organization to be responsible for conducting PIRs. This to-be-named organization is referred to throughout this report as the “PIR Staff Office.” It will be the responsibility of the ATS and ARA management teams to ensure the PIR Staff Office has adequate resources to accomplish its PIR responsibilities.

Since the PIR Staff Office will have primary responsibility for conducting PIR assessments, that office should be empowered to establish the standard operating procedures that will be followed. We recommend these procedures, once established, be documented in a written handbook so everyone involved with PIR activities will know and understand what is expected.

Procedures

“*Procedures*” provide the detailed guidance for step-by-step actions needed to implement the policy fully. While policy sets an organization’s direction, and process provides the structure, it is the procedures that are designed to ensure the policy is fully implemented. The procedures will describe the specific activities to be performed in conducting PIRs.

Summary of Suggested PIR Procedures

We have listed the procedures that could be considered under each phase of the PIR process.

□ *Planning the PIR*

- 1) Identify whether or not the acquisition will have a PIR assessment.
- 2) Assign a representative from the PIR Staff Office to assist in preparing for the PIR effort. This individual would not participate as a team member on the Investment Analysis Team, but would serve as a consultant in developing planning documents for the PIR assessment.
- 3) Assist the Investment Analysis Team in developing a written PIR Plan describing the general overview of the approach that will be taken in conducting the PIR assessment.
- 4) Prepare a PIR Strategy Paper.

□ *Conducting the PIR*

- 1) Schedule the calendar time for conducting the PIR.
- 2) Identify and notify all participants on the cross-functional PIR assessment team.
- 3) Review the PIR Strategy Paper containing the detailed plan for conducting the PIR assessment.
- 4) Develop a timetable for conducting the PIR.

- 5) If a briefing on the acquisition is desired to bring the team up to date, request a briefing from the acquisition organization for the PIR assessment team after that team is assembled.
- 6) Reconfirm the elements to be measured during the PIR assessment.
- 7) Identify the types of data and documents that need to be collected.
- 8) Prepare data collection tools, such as customer/user surveys.
- 9) Collect data and documents.
- 10) Interview key players in the acquisition process, including members from the Investment Analysis Team and Solution Implementation Team, as well as customers and users of the system or equipment.
- 11) Conduct site visits as necessary to accomplish PIR assessment objectives.
- 12) Assess operator training related to the system or equipment acquired.
- 13) Analyze data, documents, and results of surveys and interviews.

□ ***Reporting and Feedback Loop***

- 1) Develop findings and recommendations.
 - Measure actual results against estimated results for the elements of the PIR.
 - Identify causes for actual results that deviate significantly from the estimated results.
 - Develop recommendations for actions to correct problems discovered. These recommendations should cover issues involving the acquisition program or project being evaluated and for the phases of the AMS process.
- 2) Verify the reasonableness of recommendations.
- 3) Determine whether future PIR activities involving this acquisition should be scheduled.
- 4) Document the results of the PIR assessment in a written report.
- 5) Distribute the report to appropriate decision-making bodies, such as:
 - FAA Acquisition Executive
 - Joint Resources Council
 - Sponsor
 - Integrated Product Team
 - Investment Analysis Division
 - Mission Analysis Steering Group
 - Integrated Product Leadership Team
 - Integrated Management Team
- 6) Conduct briefings as appropriate.
- 7) Establish targeted lessons learned.
- 8) Share lessons learned with those who may have a lessons-learned issue through existing forums, such as:
 - JRC meetings
 - Acquisition Reviews
 - IPLT meetings
 - Program Status Reports (PSR)
 - Air Traffic System Development Status Report (ATSD)
 - Directorate level all-hands meetings
 - Briefings to Integrated Product Teams and various directorates

- 9) Track implementation of recommendations from the report.
- 10) Report corrective actions taken or pending on an on-going basis to the FAA Acquisition Executive or designated party.
- 11) Perform trend analyses based on a series of PIR assessments.
- 12) Facilitate improvements to the AMS process based on lessons learned and the results of trend analyses.

Appendix E: **Detailed Methodology**

This appendix provides additional detail on the methodology used for developing the information in this review. A methodology summary is provided in the text of this report.

In order to identify a reasonable approach for the FAA to use in developing PIR policy, process, and procedures, we conducted the following research and analyses:

- 1) *We established an approach for conducting PIRs based on the best practices of other government agencies, private industry, and academic organizations.*

We conducted a systematic search to identify government agencies, private industry, and academic organizations that had PIR policies or processes in place. Government agencies providing information for this review included the Department of Defense, the United States Customs Service, the Internal Revenue Service, the Social Security Administration, and the United States Coast Guard. Where PIR practices were identified, we reviewed published policy and guidance documents and interviewed representatives from the various agencies.

We reviewed laws, regulations, and guidance pertaining to PIRs. We reviewed guidance provided by GAO for capital decision making and guidance from OMB on evaluating information technology investments. We traced elements of the various PIR policies and processes provided by other government agencies to the guidance provided by GAO and OMB.

We also reviewed data from private industry and academic organizations. We identified a benchmarking study from the American Productivity and Quality Center's Institute for Education Best Practices. Benchmarking is the process of identifying, learning, and adapting outstanding practices and processes from any organization, anywhere in the world, to help an organization improve its performance. This study was designed to measure institutional performance outcomes. Twenty-five institutions and businesses participated in this study, including Raytheon TI Systems, University of Central England, and Indiana University–Purdue University Indianapolis.

Using the data collected from government agencies, private industry, and academic organizations, we established a generalized approach for conducting PIRs.

- 2) *We documented PIR practices currently in place at the FAA.*

Using the programs reported in the SPIRE database as our universe, we requested information from program managers for 43 of the 44 programs reporting in SPIRE. (The one program omitted from our review was eliminated because that acquisition was for services only. That acquisition did not include the purchase of facilities, equipment, or technology, nor was it for a developmental program.)

From the 43 programs in our sample, program managers reported they performed, or planned to perform, PIRs for eight programs. We conducted in-depth interviews with 11 Integrated Product Team members from these eight programs to document the PIR practices currently in place for those programs.

We also contacted program managers for six additional programs reporting benefits variances in SPIRE to understand how the programs tracked and measured benefits.

3) *We identified processes within the AMS that could be used in conducting PIRs.*

As noted above, we conducted interviews for programs with PIR practices planned or in place, and interviews for programs reporting benefits variances in SPIRE. We also interviewed 19 additional individuals representing a range of knowledge and special interest related to the development of a PIR process. These additional interviews were conducted to gain insight into the steps that would be needed for a successful PIR process. These individuals were selected based on their association with a particular team or function within the FAA. These individuals represented 11 functional areas or working groups including:

- FAA Acquisition Executive Advisory Board (FAB),
- Integrated Product Leadership Team (IPLT),
- Acquisition System Advisory Group (ASAG),
- In-Service Decision team,
- Post Implementation Review analysis team
- Integrated Capability Maturity Model (iCMM),
- Portfolio Management,
- General Accounting Office(GAO)/Office of the Inspector General (OIG) liaison office,
- National Airspace System (NAS) architecture,
- Facilities and Equipment (F&E) budget, and
- Chief Information Officer (CIO).

4) *We identified an approach for developing a standardized PIR process.*

We matched current and recommended PIR practices identified from FAA interviews in items (2) and (3) above to PIR processes identified from research in item (1) above. From this match, we designed an approach for developing a standardized PIR process. We reviewed FAA policies and processes under the AMS to blend the recommended approach into the acquisition management system already in place.

- 5) *We verified the feasibility of the approach identified with FAA officials familiar with the PIR effort.*

We forwarded for comment an outline of the recommended approach to 35 FAA personnel and support contractors. The list of selected reviewers included individuals previously interviewed and members of the IPLT and ASAG who had not previously been contacted. Many reviewers forwarded the outline to others and collected comments from their teams. We conducted additional interviews with several of the reviewers to ensure we understood their comments, suggestions, and concerns. We incorporated their comments into the recommended approach, revising steps as appropriate.

Appendix F: **List of Acronyms and Abbreviations**

ACM	NAS Configuration Management and Evaluation Staff
AMS	Acquisition Management System
APB	Acquisition Program Baseline
ASAG	Acquisition System Advisory Group
FAA	Federal Aviation Administration
FAB	FAA Acquisition Executive Advisory Board
FAE	FAA Acquisition Executive
FAST	FAA Acquisition System Toolset
GAO	General Accounting Office
IOT&E	Independent Operational Test and Evaluation
IPLT	Integrated Product Leadership Team
IPT	Integrated Product Team
IPT/PT	Integrated Product Team/Product Team (Referred to interchangeably in this report as the <i>acquisition organization</i> since the agency is moving to a <i>services concept</i> that may not rely on the IPT/PT structure in the future.)
JRC	Joint Resources Council
JRC-1	Mission Needs Statement approval point
JRC-2	Investment decision point
JRC-2B	Second meeting in a series of two investment decision JRC meetings
NAS	National Airspace System
OMB	Office of Management and Budget
P3I	Preplanned Product Improvements

PIR	Post-Implementation Review
SPIRE	Simplified Program Information Reporting and Evaluation